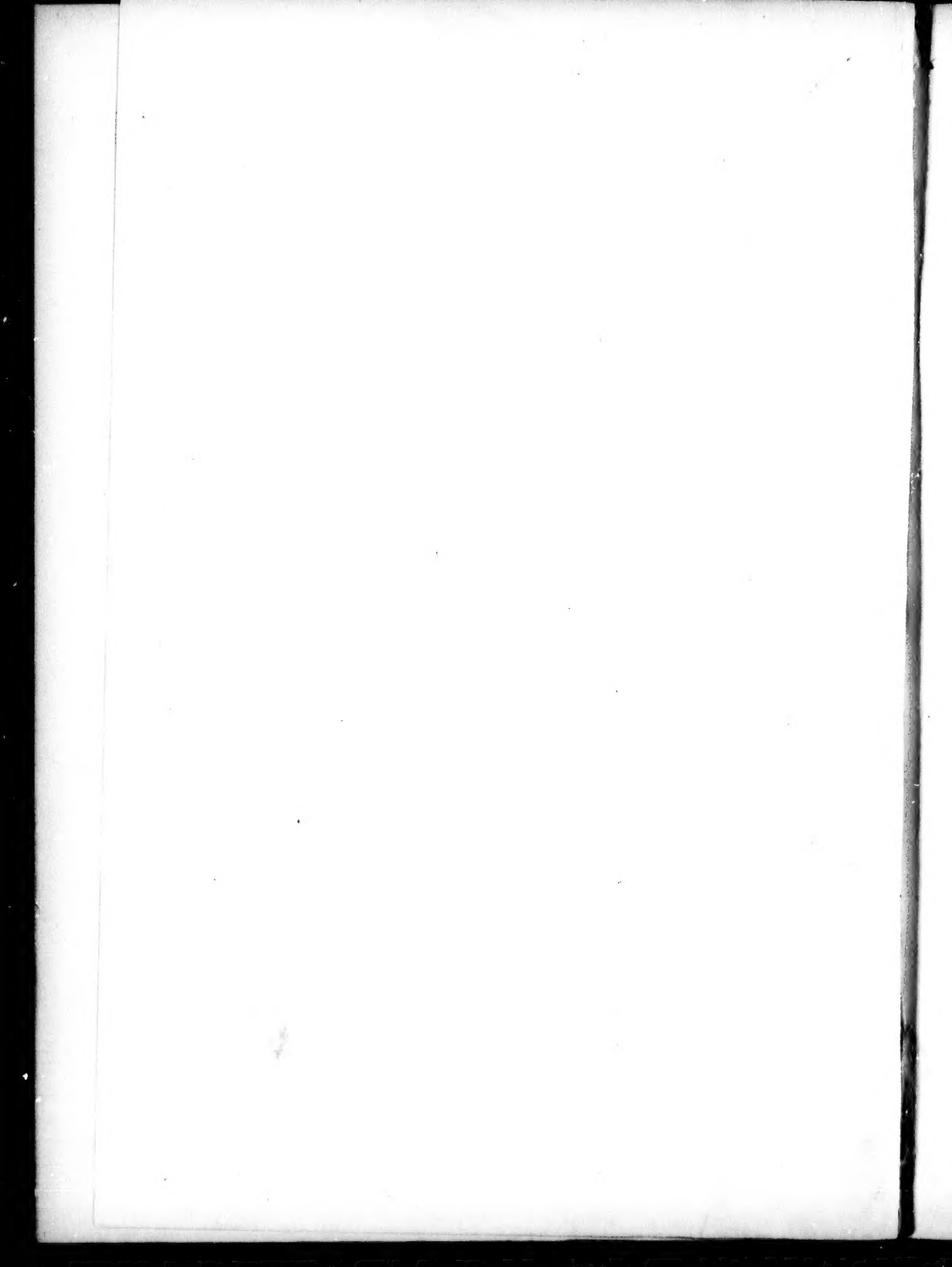




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CENTRAL EXPERIMENTAL FARM,
OTTAWA, CANADA.

BULLETIN No. 1.

FEBRUARY 12th, 1887.

TO THE HONOURABLE THE MINISTER OF AGRICULTURE:

SIR,

I have the honour to submit herewith the first Bulletin of the Central Experimental Farm for the year 1887.

During the short time which has elapsed since the establishment of this important section of the Department of Agriculture, much work of a preliminary character has been accomplished, many of the details of which will appear in subsequent Bulletins.

Under your instructions I have visited the Maritime Provinces also Manitoba, the North-West Territories and British Columbia, for the purpose of acquiring such information as will aid in determining where the several Experimental Farms which are to be established may be located, so as to confer the greatest good on the greatest number of farmers in the Provinces and Territories referred to. I have also visited many districts in the Provinces of Ontario and Quebec, and availed myself of every opportunity which has presented of gaining information relating to the condition of agriculture as well as its special needs in these Provinces.

Trusting that this report of progress will meet with your approval, and also prove satisfactory to the farmers of Canada for whose special benefit this work is being undertaken.

I have the honour to be,
Your obedient servant,

WM. SAUNDERS, F.R.S.C., F.L.S., F.C.S.
Director.

Ottawa, February 10th, 1887.

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CENTRAL EXPERIMENTAL FARM,

OTTAWA, CANADA.

INTRODUCTORY.

In presenting this first Bulletin of the series to be issued from the Experimental Farm for the information and guidance of all those who are interested in any of the departments of agricultural industry, it has been thought best to refer briefly to the circumstances which have led to the establishment of Experimental Farms in Canada, and to recite what classes of work it is proposed should be undertaken by these institutions.

During the session of the Dominion Parliament in 1884 a select committee was appointed by the House of Commons to enquire into the best means of encouraging and developing the agricultural interests of Canada. That committee took evidence and collected and published the opinions of a large number of practical men, most of whom favored the establishment of one or more Experimental Farms.

In November, 1885, shortly after the present Minister of Agriculture took office, the writer was instructed to visit as many of the Experimental Farms and Stations in the United States as might be necessary in order to gain information as to the benefits such institutions were conferring on practical agriculture, including stock raising, dairying, &c., and on horticulture, with special reference to the production of fruit. Also to enquire into the subject of forestry and all other useful phases of this work.

A report was prepared and submitted to the Minister of Agriculture on the 20th of February, 1886, containing the results of this enquiry, accompanied by an outline of a proposed system of experimental work, embracing those features which it was thought would be most particularly beneficial to the great agricultural interests of Canada.

During the session of Parliament for 1886 the Minister of Agriculture introduced "An Act respecting Experimental Farm Stations," which after a brief discussion was passed without opposition. This Act provides for the establishment of an experimental farm for the Provinces of Ontario and Quebec jointly, to be known as the principal or central farm, one for the Maritime Provinces jointly, one for the Province of Manitoba, one for the North-West Territories, and one for the Province of British Columbia. Provision was also made for the setting apart of several sections of land in Manitoba, the North-West Territories and British Columbia for the special purpose of tree planting and timber growing.

The work to be undertaken at the different stations is thus set forth in the Act:—

"(a.) Conduct researches and verify experiments designed to test the relative value for all purposes of different breeds of stock, and their adaptability to the varying climatic or other conditions which prevail in the several provinces and in the North-West Territories;

(b.) Examine into the economic questions involved in the production of butter and cheese;

(c.) Test the merits, hardiness and adaptability of new or untried varieties of wheat or other cereals, and of field crops, grasses and forage-plants, fruits, vegetables, plants and trees, and disseminate among persons engaged in farming, gardening or fruit growing, upon such conditions as are prescribed by the Minister, samples of the surplus of such products as are considered to be specially worthy of introduction;

(d.) Analyze fertilizers, whether natural or artificial, and conduct experiments with such fertilizers, in order to test their comparative value as applied to crops of different kinds;

(e.) Examine into the composition and digestibility of foods for domestic animals;

(f.) Conduct experiments in the planting of trees for timber and for shelter;

(g.) Examine into the diseases to which cultivated plants and trees are subject, and also into the ravages of destructive insects, and ascertain and test the most useful preventives and remedies to be used in each case;

(h.) Investigate the diseases to which domestic animals are subject;

- (i.) Ascertain the vitality and purity of agricultural seeds ; and
 (j.) Conduct any other experiments and researches bearing upon the agricultural industry of Canada, which are approved by the Minister."

The proposed establishment of these Experimental Farms in different Provinces of the Dominion has met with hearty expressions of approval from farmers everywhere, and has awakened a general interest in experimental agriculture to a degree never before manifested. Intelligent and thoughtful men realize that agriculture has always been an experimental branch of national industry, and that there will, during all future time, be associated with it important problems worthy of investigation. The progress of agriculture in the past has been mainly brought about by the experiments of practical farmers, many times repeated, and the results passed from one to another have eventually become common property. Knowledge accumulated in this laborious and fragmentary manner while exceedingly useful is often lacking in exactness while the relative value of the facts gained is not often accurately determined. The ordinary farmer has neither the appliances nor the time to conduct experiments of an exhaustive and precise nature, indeed with many the problem of subsistence is an important and all absorbing concern. Seeing that the world's supplies depend almost entirely on the world's crops, farming must always rank as the most essential of human pursuits, and should be aided and encouraged to the utmost. The important bearing of the crops on the prosperity of Canada is well understood, and any aid or stimulus given to increased production in this department will speedily be felt in all the avenues of commerce.

It is intended to make the Experimental Farms as generally useful to the farming community as possible and to undertake such courses of experiments in each province as may be most needed there. Constant effort will be made to ensure accurate results, and by careful repetition of the work undertaken to remove, as far as possible, every element of error, while the conclusions will be fully and honestly reported.

WORK ALREADY ACCOMPLISHED.

The Central Experimental Farm has been located near the Capital, within three miles of the Parliament Buildings. Four hundred and sixty acres of land have been secured in a commanding position

overlooking the city of Ottawa, possessing every desirable variety of soil and aspect to meet the varied requirements of the experimental work to be conducted there. Although possession was had but a few days before winter set in, some work has been accomplished, unnecessary internal fences have been removed, the loose stone cleared over a large area, some grading done and about twenty acres of land ploughed. During the winter a large supply of stable manure has been obtained, between fifty and sixty acres of undergrowth chopped and piled, an office and store room erected, and a glass structure built for the purpose of testing the vitality and germinating power of seeds.

Correspondence has been had with the Directors of the Royal Gardens at Kew, England, the Imperial Botanic Garden at St. Petersburg, Russia, and the Imperial College of Agriculture at Japan, and as a result collections of grain and seeds will shortly be received from these several institutions. Purchases of seed-grain in great variety, including wheat, barley, oats and rye, also grass seeds for meadows and permanent pastures have been made in Northern Russia, Germany, England, Canada and the United States with the view of testing their comparative merits when grown side by side. A collection of many varieties of potatoes has also been secured for a similar purpose. A large number of standard fruit trees and vines are being obtained; also a collection of hardy Russian sorts, comprising nearly two hundred varieties, some of which it is hoped will succeed in the colder sections of the Dominion where the more tender kinds cannot be successfully grown. A very extensive assortment of economic and other forest trees and shrubs, both native and foreign, are being secured; also collections of seeds of the same, for the further extension of this important division of the work. Plans of the necessary buildings are also being prepared, so that no delay may occur when the time arrives for their erection.

SEED TESTING.

This department is now ready for work. It has been undertaken for the purpose of determining the value of the agricultural seeds which are sold to farmers from year to year, and to save them from some of the losses to which they are annually subject by using old and inferior seeds. Every farmer in Canada will have the privilege

and the right to send to the Experimental Farm samples of any seeds of which he may desire to know the germinating power, and it is hoped that all will avail themselves freely of the advantage offered. A suitable glass structure has been erected for this work of a sufficient size to admit of the testing of a very large number of samples at one time.

METHODS.

The returns of the germinating power of seeds will not be based upon a single test, but every sample will be tested in duplicate, once in the soil and again out of the soil in the most approved form of apparatus devised for this purpose. Small seeds will also be examined for impurities such as sand, dust, foreign seeds, chaff, &c., and the proportion of these given.

DIRECTIONS FOR SENDING SAMPLES.

The samples sent should be a fair average of the whole of the seed from which it is taken. The quantities which should be forwarded will vary in proportion to the size of the seed. Of large seeds such as corn, peas, wheat, barley, oats, &c., about four ounces will be required, while of the smaller seeds such as grass, clover, turnip, carrot, &c., from half an ounce to an ounce will be sufficient. The larger seeds may be put into small cotton bags each marked with the name of the seed, and these smaller bags enclosed in a larger canvas bag provided with a tag on which the address may be written. The smaller seeds may be folded in stout paper, each parcel marked and the whole enclosed in a strong envelope. Packages and communications should be addressed: "Experimental Farm, Ottawa, Canada." All mail matter will be carried free to and from the Experimental Farm within the limits of the general postal regulations as to the size and weight of packages. All seeds received will be entered in the order in which they arrive and the returns made as promptly as possible.

TREATMENT OF FOREST TREE SEEDS.

The great importance of encouraging and stimulating tree planting among the farmers, especially in the Northwest Provinces, is beyond dispute. It is felt also that this can only be accomplished on the scale of magnitude required by the planting of suitable forest tree seeds, which can be gathered from the native trees growing in

the Provinces or purchased at a small cost. This leads us to add a few words of advice on the general treatment of forest tree seeds

Many of the tree seeds which mature early are better sown soon after they are gathered. This applies especially to the several varieties of elm and to the soft maple. The hard maple, box elder and ash seeds keep well over winter, provided they are stored in a cool place and not allowed to get too dry. Acorns, nuts and stone fruits are most successfully planted in the autumn, but if kept over winter should be mixed with moist sand and exposed to frost and planted as early as possible in the spring, taking care that they are at no time left in masses under conditions so as to heat. Many failures with seed arise from not sowing it in partial shade. If seeds are exposed alternately to hot sunshine and cold, while they are swelling, they will frequently rot before they appear above the surface. The requisite shade may be obtained by the use of brush wood, or a light layer of corn stalks or straw, removing this as soon as the seedlings are up and fairly established. Many nurserymen enclose their seedbeds with wooden frames, on which are laid light frames made of one-inch strips and covered with cotton or muslin. These are convenient and can be provided at small cost. Seedlings of evergreen trees grow slowly and require to be shaded and kept moist during hot weather all through the first year of their growth and sometimes longer. Seeds take some time to swell their coats after being placed in the ground, hence, if planted dry, they should be sown as soon as soil can be had to cover them. Germination may be hastened, especially with seeds of a hard texture, by pouring hot water on them and allowing them to soak for twenty-four hours before sowing.

Seeds sometimes fail to grow from being planted too deep. The larger nuts and acorns should be covered with soil about as deep as the seed is thick; other smaller seeds should not be covered with more than half an inch of mellow soil, pressed gently with the back of a spade so as to make the earth firm around them, and when the young seedlings appear they should be carefully weeded. Occasionally seeds will remain in the ground until the following season without germinating. Should any fail to grow by the time spring is over, and on examination the kernels are found sound, the seedbeds should be kept weeded and shaded until the next season.

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